GOES-R Risk Reduction Annual Meeting 2011

Christian Kummerow

CIRA Director

22 September 2011

CIRA Product Development Interest

- Tropical cyclone genesis
- Severe weather forecasting
- Data Assimilation for maximum data use
- Solar energy forecasts
- Data fusion for cloud properties
- Precipitation, orographically forced precipitation
- Snow & snow melt

Future Satellites/Sensors

Operational Satellites

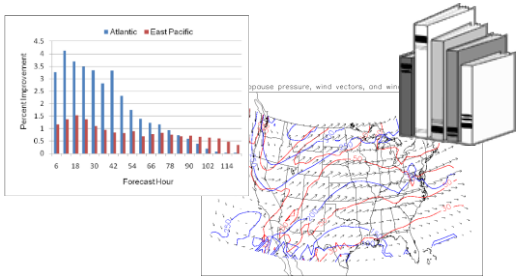
Time line

Year 1-3

Year 4-5

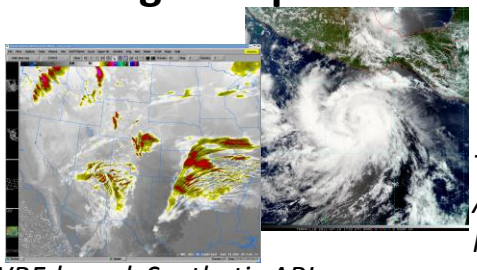
Year 6-7

Risk Reduction Research



Algorithm Working Groups

Proving Ground Testbed



WRF-based Synthetic ABI 10.35µm Imagery (02/27/2011)

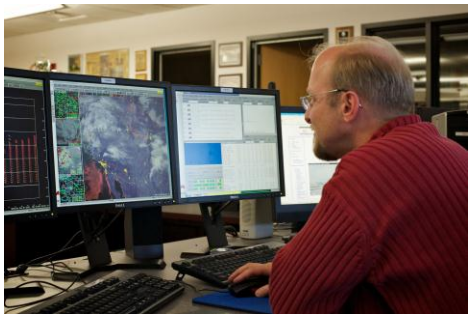
TC Dora (2011) ABI Natural Color Imagery

Product Implementation Program

Fundamental Research

GOES Improved Measurements and Product Assurance Plan (GIMPAP)

Product System Development and Implementation (PSDI) Program



WFO Boulder Forecaster Chad Gimmestad Studying GeoColor

Example: CIRA GOES-R Synthetic Imagery Projects 2005-2011

Timeline

2005 →

GOES-R Risk Reduction Project:
CIRA produces their first synthetic GOES-R ABI imagery (ABI bands 7-16) for a severe weather event over Kansas which occurred in 2003

2006 →

First Algorithm Working Group project: Simulated ABI Fire Proxy Datasets
Case 1: Multiple fire hotspots with differing characteristics were inserted into the Kansas data set .
Case 2: Simulated ABI agricultural fire proxy datasets located in Central America were created based on real GOES observational data.

2007 – 2011 →

Additional AWG Fire Proxy Dataset projects:
Base on real fire events, 5 additional fire proxy datasets of varying locations and different types of fires were produced over a five-year time span: California wildfires, British Columbia forest fires, Arkansas agricultural fires, etc..

2012 ? →

Future Product Implementation Program:
Synthetic forecast model data will most likely be displayed at WFOs and National Centers as part of the AWIPS II product palette.

5-year CIRA GOES-R Synthetic Imagery Project

Timeline

2005 - 2011

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Risk reduction research on simulated GOES-R ABI datasets including the production of simulated ABI datasets for different type of weather and fire events.

2012 ?

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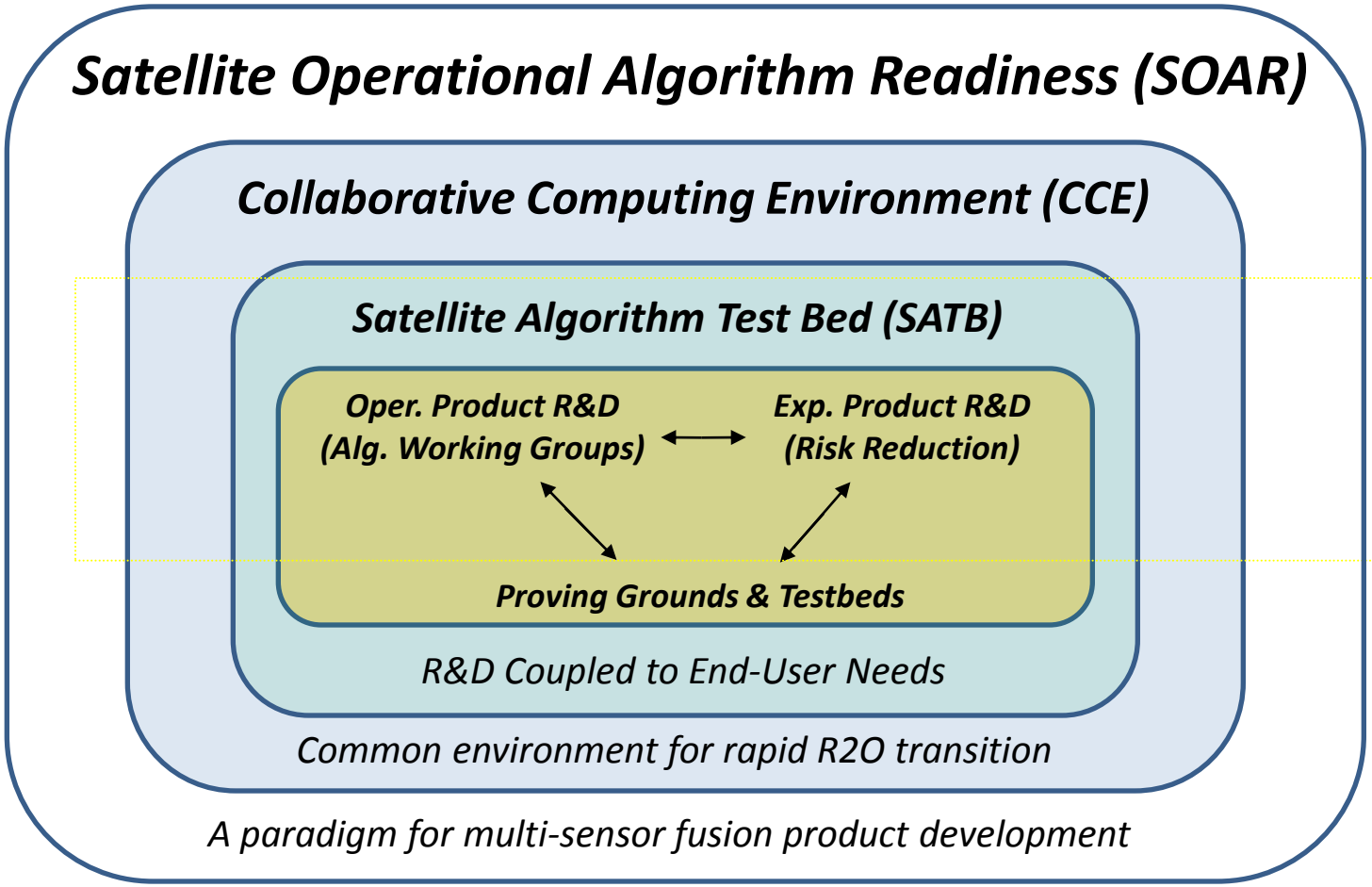
Evolution of STAR



→ SOAR must 'fly above' any single satellite program and provide an environment for integrated product development.

Thematic Approach (Example)

Stovepipe Linear Model

GOES Satellite Program

GIMPAP

Solar Energy Forecasting

1-2 year project

GOES Product

NSOF Operations

Parallel Model

Solar Energy Forecasting

NOAA Models	Satellite Resources	Partners
HRRR, LAPS, GFS, etc.	GOES, GOES-R, JPSS, International	NREL, Industry

Ongoing program, sustained student involvement

Satellite/Model Fusion Products

Operational Transitions to Vested Users

A big-picture approach provides broader connection between NOAA resources, provides latitude to define research approach optimally, and ties research to end-user throughout the development process.